

PreCam Exposure Times

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DES-Calib/PreCam Telecon

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The Equation

 $S/N = N_* / sqrt(N_* + N_{sky})$

where

 N_* and N_{sky} are in # of detected electrons.

(Readnoise and dark current are ignored.)



SURVEY

Original Estimates (2009)

Baseline PreCam Survey Point-Source Magnitude Limits (optimized to achieve S/N=50 at DES saturation + 1.5mag)

Band	Exposure time [seconds]	PreCam saturation limit	PreCam mag limit S/N=50	Number of usable stars per sq deg (SGP)
g	36	12.8	17.8	186
r	51	13.2	17.8	265
i	65	13.4	17.7	344
Z	162	14.1	17.5	317
Y	73	11.6	14.3	150

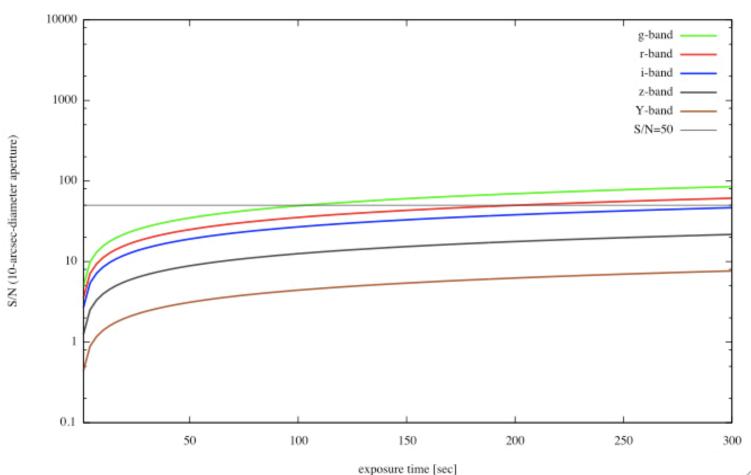


PreCam on Curtis-Schmidt with Original Folding Flat (50% Vignetting)



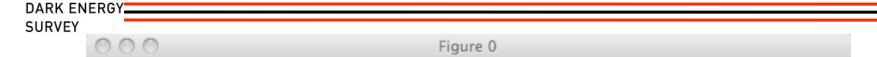
S/N for a m=17.5 Point Source Observed by PreCam on Curtis-Schmidt (50% Vignetting)

(Assumes 3.0-arcsec FWHM seeing and Gaussian PSF)

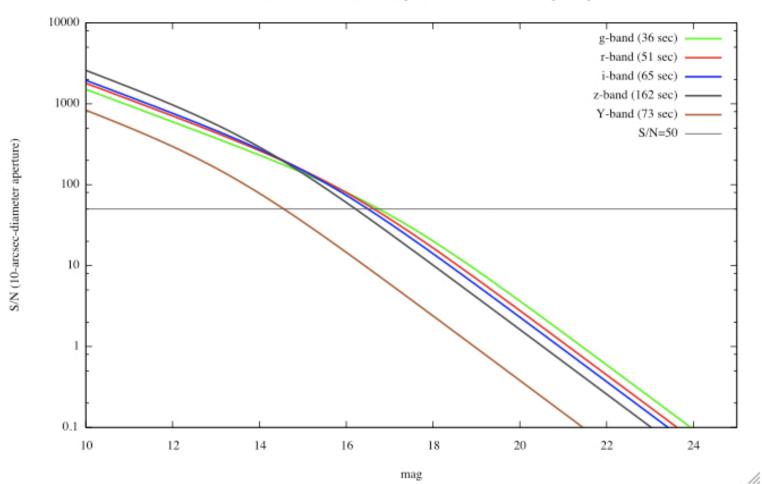




PreCam on Curtis-Schmidt with Original Folding Flat (50% Vignetting)



PreCam S/N for the Original Set of Exposure Times (Assumes 3.0-arcsec FWHM seeing, Gaussian PSF, and 50% vignetting)



5



PreCam on Curtis-Schmidt with New Folding Flat (0% Vignetting)

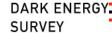
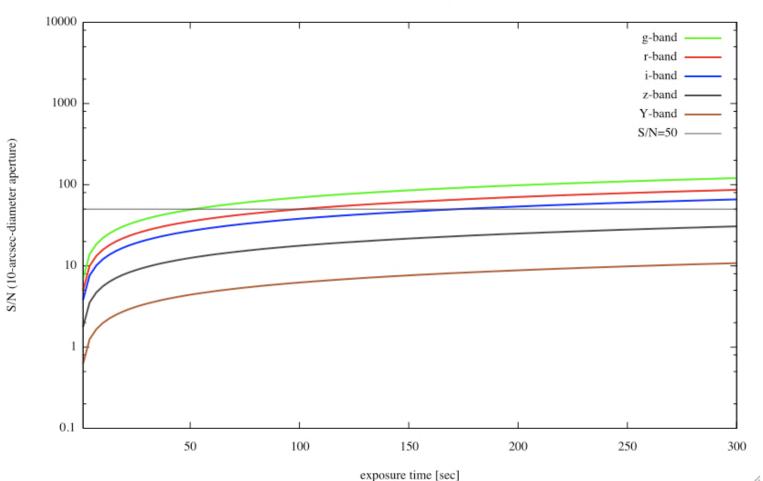


Figure 0

S/N for a m=17.5 Point Source Observed by PreCam on Curtis-Schmidt (No Vignetting) (Assumes 3.0-arcsec FWHM seeing and Gaussian PSF)



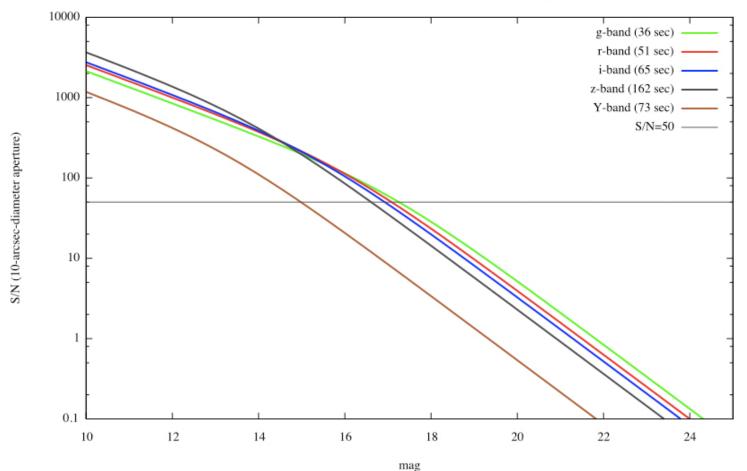


PreCam on Curtis-Schmidt with New Folding Flat (0% Vignetting)

DARK ENERGY SURVEY

Figure 0

PreCam S/N for the Original Set of Exposure Times
(Assumes 3.0-arcsec FWHM seeing, Gaussian PSF, and 0% vignetting)



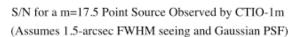


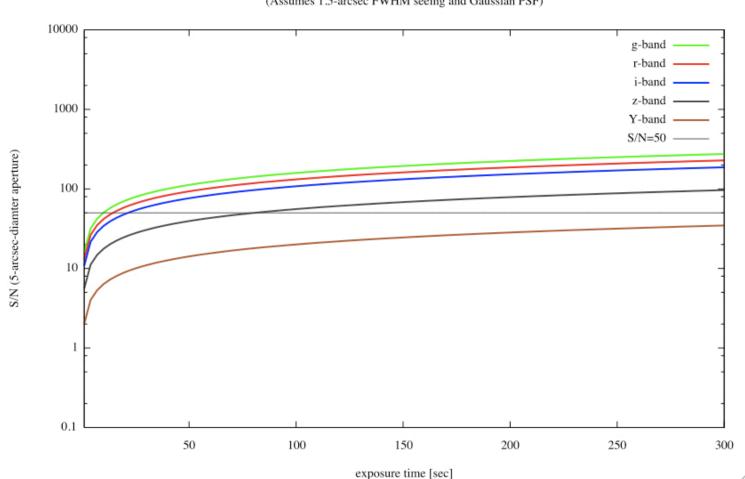
DARK ENERGY

PreCam on CTIO/SMARTS 1m (0% Vignetting)

Figure 0

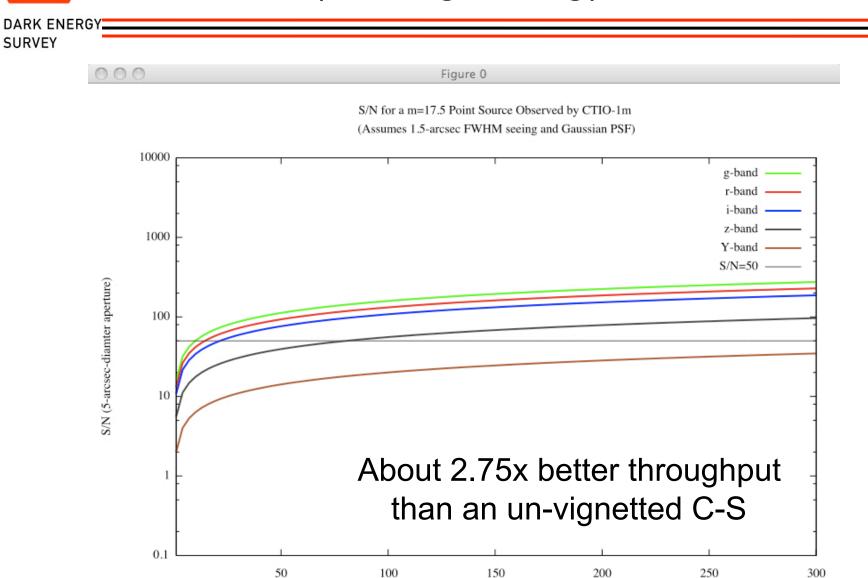








PreCam on CTIO/SMARTS 1m (0% Vignetting)



exposure time [sec]



Extra Slides

DARK ENERGY SURVEY